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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

MEMORANDUM - FOREST OFFICERS IN CHARGE OF THE PETE CREEK CONTROL PROJECTS.

RE - Administrative Suggestions for the 1927 Season.

Report of Mountain Pine Beetle Infestation
Kootenai National Forest 1925
Nov 3 - 1925

Forest Insect Field Station,
Coeur d'Alene, Idaho,
March 11th, 1927.

GOVERNMENT PRINTING OFFICE

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REPORT OF THE MOUNTAIN PINE BEETLE INFESTATION

KOOTENAI NATIONAL FOREST 1925

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James E. Evenden,
Associate Entomologist.

Forest Insect Field Station,
Coeur d Alene, Idaho,
Nov. 3rd, 1925.

REPORT ON THE MOUNTAIN PINE BEETLE INFESTATION

KOOTENAI NATIONAL FOREST 1925

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INTRODUCTION

Pursuant with the request of Forest Offices of District One, an examination of the Pete Creek drainage, Kootenai National Forest, was made on September 17th, 1925. The purpose of this examination was to determine the present status of the mountain pine beetle infestation in the white pine type and to establish its relation to the epidemic in the lodgepole pine stands on the West Fork of the Yaak River, a few miles further north.

Throughout this area practically every white pine tree had been severely injured by the sudden drop in temperature which occured in December 1924. A study of the climatological data for this region shows a drop in temperature of 98 degrees in 48 hours, or 59 degrees in 24 hours, occuring between December 14th and 16th. This injury which in this region was practically confined to the white pine has been placed in the following three classes:

1. Very slight browning of the tips of the needles.
2. Destruction of all the foliage with terminal buds uninjured.
3. Destruction of both the foliage and the terminal buds.

With the exception of a few terminals at the very top, and in some cases the leader only, many trees were examined which had produced no

1925 foliage whatever. Though the cambium of these trees still appeared to be in a healthy condition, it is believed that there will be a very high mortality of those within class three.

STATUS OF INFESTATION

This examination was not satisfactory as it was seriously complicated by the discoloration of the foliage which made the spending of further time in the area, as had been planned, useless. The trees with no 1925 foliage gave the appearance of having been attacked by the mountain pine beetle in 1924, while those with the new growth against a back ground of brown needles resemble the faded condition of the 1925 attack.

This unforseen condition made it impossible to determine the extent of the 1924 and 1925 loss by spotting the discolored foliage of the infested trees. To secure this data an extensive cruise of the region would have been necessary. In order to partially overcome this situation six miles of strip survey, two chains wide, were run and the 1924 and 1925 attacked trees counted. The results of this survey showed that there was one 1924 attacked tree to every 6.4 acres and one 1925 to 4.5 acres. These figures are questionable as one group of fifteen 1925 trees was recorded, which may have unbalanced the data secured. To determine the status of the brood development at this time, a square foot of bark was removed from the west side of 10 different trees, and the number of new attacks and the number of larvae counted.

Table Showing the relation of the number of larvae per square foot to the number of new attacks:

TREE #	DBH	NEW ATTACKS	LARVAE	PERCENT OF INCREASE
1	30	7	256	3560
2	26	5	190	3800
3	24	9	220	2420
4	24	6	189	3125
5	18	11	250	2272
6	24	8	265	3325
7	28	7	275	3925
8	30	12	225	1875
9	36	6	270	2500
10	30	10	225	2250

RELATION OF THE WHITE PINE AND LODGE-POLE PINE INFESTATIONS

The region lying between the head of Pete Creek and the West Fork of the Yaak River and the divide between Pete Creek and Garrer Creek, was covered. On the higher elevations along the Pete Creek divide the white pine type gives way to lodgepole. These two types appear rather well defined as there is practically no intermingling of species.

Along the West Fork of the Yaak River opposite the head of Pete Creek isolated infested Lodgepole were recorded which became more numerous towards the heavy infestation below the mouth of Garrer Creek. There is no physical connection between these two infestations although one could not say that the insects did not fly from one to the other. However, this is not believed to be the case and it is felt that the outbreak in the white pine is a local situation, which is a condition quite often found in over mature stands.

RECOMMENDATIONS FOR CONTROL

In the thoughts of control for this area it must be borne in mind that though there is apparently no connection between these two infestations at this time, no guarantee can be made that none will occure in the future. Though we have no records of the mountain pine beetle spreading from lodgepole pine to white pine, we have no assurance that it will not.

However, regardless of the above condition if the stumpage value of this timber justifies the expense it is recommended that control measures be instituted. This plan should be on at least a three year basis, with yearly observations following, and maintenance work when necessary. The control measures would consist in felling the trees and peeling the infested length. Though an attempt would be made to treat every infested tree, many would be missed which necessitates the adopting of this plan on a three year basis in order that a thorough clean up of the area can be made. It is estimated that two thousand dollars would be necessary to treat the 1925 attacked trees within this area. The work will no doubt be complicated somewhat due to the abnormal fading of the foliage which may necessitate an intensive survey in order to locate the infested trees.

The determination of the economics of this problem is not believed to be within the province of the Bureau of Entomology so the recommendations for control have been made contingent upon the stumpage value, merchantability of the stand, etc., which decision will of necessity rest upon the Forest Service.

No results are guaranteed, but from the work conducted in the Coeur d Alene National Forest for the past two seasons it is believed that satisfactory results can be shown. Satisfactory to the extent that it is believed a saving of timber will be shown in proportion to the per cent of the infestation treated.

MEADOW CREEK EXAMINATION

An examination of the mountain pine beetle infestation in the white pine stands of Meadow Creek was made on September 18th. Contrary to the condition found within the Pete Creek Drainage there was very little injury to the white pine due to winter killing.

Though a large volume of white pine has been killed by the mountain pine beetle during the past 10 years very little new work was recorded and no 1925 attacks whatsoever. It is believed that this outbreak has subsided from an epidemic to a so called normal condition. However, this infestation should be followed very carefully in order that control measures could be instituted should an increase become apparent.

It is recommended that in the event of control work being instituted in the Pete Creek Region, this area be surveyed and all 1925 infested trees treated in conjunction with the other project. An additional five hundred dollars should be allotted to cover this project, making a total of twenty five hundred dollars for the control work on both Pete and Meadow Creeks in the spring of 1926.

Respectfully submitted,

James C. Evenden

James C. Evenden,
Associate Entomologist.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Entomology
Washington, D. C.

Forest Entomology

MEMORANDUM - FOREST OFFICERS IN CHARGE OF THE PETE CREEK CONTROL PROJECTS.

RE - Administrative Suggestions for the 1927 Season.

SPOTTING.

During the 1926 season a 100 percent survey was made of the project area for the purpose of marking all of the infested trees. This work was very satisfactory and only a small percent of the infested trees were missed. Last year the spotting crew, consisting of one compassman and two spotters, covered a strip 5 chains wide. These strips were run on a compass line and the distance paced and a record kept of the number of trees on each strip by the compassman. In the location of the marked trees it was necessary for the crew foreman to follow out these strips, which were lightly blazed, in order to relocate the infested trees marked for treatment. It would be very easy for the compassman to construct a map of the area showing the relative positions of the different groups of trees and certain topographical features. Forest Service Forms 878 should be used in the construction of these maps. This map would make the locating of

the marked trees a great deal easier for the crew foreman and would eliminate the necessity of blazing the survey strips. Furthermore, the strips covered by the spotters were too wide. In forest types of this character the maximum width of strip which one man can thoroughly cover would be 1 1/2 chains wide, and 1 chain would be preferable. Though this increases the cost of spotting, more efficient work is performed and a larger percent of the infested trees are marked.

Last year the trees were blazed and the tree number placed upon them. I would suggest the use of the cloth tag which was used last year on the Beaverhead - Bitterroot Project and which will be used during the coming season. This tag which is approximately 4X6 inches is made of sign painter's cloth and is tacked to the tree. On this tag is marked in blue or red crayon the tree number, the tree species, the diameter, and the length treated or number of 16 foot logs. As some of these tags are removed from the trees by squirrels and deer it is essential that the trees be blazed and marked with a "T" in addition to the tag. This blaze will assist the crew foreman in locating trees from which the tags are missing. It will be found that these tags (a sample of which is attached to this report) can be seen a great deal easier than the ordinary blaze and will be of great help to the crew foreman in relocating the marked trees for treatment.

SPOTTER'S RECORDS

A sample of the form used by spotters in recording the record of the trees marked is attached to this memorandum. A supply of these forms for use on the project is enclosed.

CONTROL WORK

No suggestions can be made at all for the improvement of the control work as conducted during the 1926 season. The work was very thorough and complied with all entomological requirements.

KEEPING OF RECORDS

Though in lodgepole pine control projects the tree unit has been used as a basis in computing cost data with white pine, which has a larger and more variable volume, a B. F. unit should be used. This will necessitate the recording of the diameter and heighth, or number of 16 foot logs, of the trees treated. The diameter and number of 16 foot logs can be placed on the tags by the spotters if necessary, or can be taken by the crew foreman at the same time that he secured the length of bole treated. This is believed essential for a fair comparison of costs in different projects.

In 1926 no record was kept of the tree species and as a considerable number of lodgepole pine was treated it was hardly fair to place them in the same class as white pine which has a

greater surface to be peeled.

At the close of each day's work the crew foreman should turn over to the project or camp manager the tags from the trees which have been treated. These tags are then checked against the spotting record, as well as the maps, so that any trees which have been missed can be located the next day.

It is essential that the costs of the project be so segregated that the effective man days can be determined. This will show the number of B. F. treated per man day and will permit of a just comparison with other projects. The securing of the number of B. F. treated per effective control crew man day is the most important data to be secured.

All of the items of expense should be segregated in order that a proper analysis of the project can be made. For example, the cooks' and flunkies' wages should be separated from the supplies, which will permit the determining of the actual cost per meal. The expenditure for the establishment of camps, etc., should also be included. Packing should be separated from truck hauling. In brief a detailed summary of all the items making up the costs of the project should be shown.

APPROXIMATE SIZE OF CREW REQUIRED FOR 1927

In the report of the writer under date of November 27th, 1926, under the "STATUS OF THE INFESTATION" it will be noticed that the estimated number of 1926 attacked trees which will re-

quire treatment in 1927 has been placed at 259. From Mr. Hendrick's report we find that the treating crews averaged 2.6 trees per effective man day. It is believed that it will be found to be more economical to plan this project on a 30 day basis with a small crew rather than on a shorter period with a larger crew. A small crew will reduce the cost of supervision by eliminating the need for a camp foreman. Furthermore, it is believed that perhaps a better class of labor can be secured for a 30 day job than for a week or 10 days. Under any plan that is adopted the spotting must be kept in advance of the control work. Spotting should be started several days prior to the arrival of the control crews in order that there will be no lost motion after their arrival.

Respectfully submitted,

James C. Evenden

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Associate Entomologist.

SPOTTING RECORD

Project area ________ Unit ________ Camp No. 1

Name of Compassman.

Date May 6 - 27 Spotter / T. ____ R. ____ Sec. ________

Tree No.	Killed by	DBH	Logs	Volume	Sp.	L. T.	Crew	Remarks
206	M.P.	20	5		W.P.	60	Smith	
207	M.P.	30	8		W.P.	105	Smith	
208	M.P.	12	4		W.P.	40	Jones	
209	M.P.	12	3		R.P.	35	Jones	
210	M.P.	28	7		W.P	115	Jones	
Totals,								

Tree number and tree species (Sp.) filled in by compassman at time tree is marked.

D. B. H. and number of logs can be filled in by spotters, or taken form marking tags by project manager if measured by crew foreman.

Length treated and crew is taken from marking tags. Volume is computed by project manager.

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SAMPLE MARKING TAG

These tags are made from Columbian Sign Painter's Cloth. They can be cut at a printing office very nicely at practically no expense. At retail price they would not cost more than $0.25 a hundred.